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SOUTH AFRICAN SKETCHES. IV.



A KAFFER VILLAGE.

THE name of *Kaffer*, or unbeliever, was originally given to the inhabitants of the south-eastern coast of Africa by the Moors, and, being adopted by the Portuguese, it became the common appellative of all the tribes inhabiting that region. These tribes, bearing a great resemblance to each other in language and customs, have doubtless sprung from one common stock, but are distinguished among themselves by various native appellations. Thus, the tribe occupying the country on the eastern frontier of the colony is named *Amakosse*. This word is formed from *Kosa*, which is used to designate a single individual, with the article *amma* prefixed to form the plural, and designates the whole tribe.

Respecting the origin of the Kaffers, little satisfactory information is to be met with. The people themselves possess no records, and little traditional knowledge. They are surrounded on all sides by a people that differ from them in colour, features, disposition, manners, and language, so that they can scarcely be considered as the aboriginal inhabitants of the southern angle of Africa. The most probable conjecture, as to their origin, is that which supposes them to be descended from the Bedouin Arabs, those wanderers who have found their way into remote and distant regions, penetrating into almost every part of Africa, and even visiting the islands of the south.

The points in which they resemble the Arab tribes, and those in which they differ from the African negroes, will be best exemplified by a brief descrip-

tion of the person and manners of the inhabitants of Caffraria.

The great proportion of Kaffer men are tall, well-made, and muscular: they have an open, manly demeanour, altogether different from that of uncivilized men in general. They vary in stature from five feet to six feet ten inches, and a cripple or deformed person is seldom seen among them. Their countenance is truly Arabic. The head of a Kaffer is not generally more elongated than that of a European, and a line from the forehead to the chin, drawn over the nose, is in some instances as finely rounded as the profile of a Roman or Grecian countenance. It has been observed that, except for colour, the Kaffer might have ranked among the first of Europeans. The complexion of this race varies from deep bronze to jet black; the latter being the more predominant. The women are of lower stature than the men, and are not so well formed. They are, except when enfeebled by sickness or age, a very sprightly and animated race, and their countenances beam with a degree of vivacity and good humour, very different from the aspect of uncivilized women in general.

The manner of life of these people is in general extremely simple. Their diet mostly consists of milk, which like the Arabs they use in a sour or curdled state. It is called *amaaz*, and is kept in leathern bottles, until sufficiently thick and acidulous. New milk is seldom used except for children, nor is any other preparation of milk employed than that already

mentioned. Next to milk, which may be considered their principal dish, the Kaffers eat boiled corn, which is generally served up in small baskets, from which each one helps himself with his hands. They sometimes pound their corn between two stones, and make it into a kind of pottage; at other times they form it into thick cakes, which are baked on the hearth, amongst the hot embers, after the manner of the ancients. They cultivate Indian corn, pumpkins, and a few esculent vegetables. They lay up provisions for winter use, either in pits, or subterranean granaries, which are always made in their cattle-folds, or they erect a sort of hut, elevated on posts, and there deposit their grain. The pit is of a circular form, a hole being first made about the size of a man's body, into which he descends and clears away the earth, on every side, to the required extent, taking care, however, that the entrance to the pit shall be only just large enough to admit his body. Before the corn is poured in, the interior is plastered with fresh cow-dung, and when the pit is filled, the same material is used to close up the aperture, which is thus rendered air and water tight. They have a species of sugar-cane growing in their country in great abundance; it is called *imfe*, and is a great favourite with the natives, on account of its sweet and succulent property. A decoction is sometimes made of this for the purpose of sweetening their other food. The Kaffers take but one substantial meal during the day, and this is in the evening, about an hour before bedtime. The articles of diet mentioned above, with occasionally a feast of animal food, are considered sufficient for the support of this hardy race. They are almost entire strangers to the nature and use of spirituous liquors, and are, therefore, free from many of those destructive disorders which are fearfully common among other nations. It is much to be lamented that Europeans, visiting those shores, have in several cases endeavoured to introduce a taste for liquors, and have even found amusement in giving drams to the Kaffer, to observe the effect which this new and exciting species of drink would have on him. With so much of sobriety and simplicity of manners and diet, we are inclined to view the Kaffer race with feelings of respect and admiration; but, unfortunately, there is a dark part of their character, but too well known to those who have watched for any length of time the habits and conversation prevalent among them. Persons who have taken but a transient view of this people, have been apt to consider them, and have even stated them to be, altogether free from vicious habits and propensities, but others, who have mingled familiarly with them, and are thoroughly acquainted with their dialect, assure us they are an exceedingly licentious race, and that the gross indelicacy of language prevalent among them is disgusting in the highest degree.

The apparel of the Kaffers consists wholly of the skins of beasts, prepared in such a manner as to render them perfectly soft and pliable. These garments, which are long enough to reach to the feet, hang loosely from the shoulders in the manner of a cloak, and are in general the only covering adopted by the men. In order to protect their bodies from the parching effect of the sun's rays, they anoint themselves from head to foot with some unctuous substance. The same materials are used for the dress of the women, but their garments are of a different shape. Short leathern petticoats, only, are worn while the women are engaged in laborious occupations, (and these it often falls to their lot to perform,) at other times an upper garment or mantle is added, having a train ornamented with a vast number of

buttons, placed in parallel lines. Their head-dresses are formed from the skin of a species of antelope, and are decorated with considerable taste with large quantities of variegated beads. This form of dress is universal, and the only difference between the appearance of the richest and the poorest in the land, is in the number and brilliancy of the ornaments employed. Some of the women have bead-strings round their necks, to the number of fifty, or even a hundred.

The clothing of this race is renewed once a year. Cattle are then slain expressly for the purpose, and the old garments, which have been worn night and day for a twelvemonth, are laid aside.

The chief wealth of the Kaffer consists in his herds of cattle. Nothing affects him more than an injury done to his horned family, whose increase and prosperity appear to occupy the chief place in his thoughts, and to be the ruling motive of his actions. Since the introduction of horses into the country, great fondness has been likewise manifested for these animals; and the young chiefs are showing the real Bedouin character in their skill in the chase, and the value they set upon their steeds.

The chief employments of Kaffer men consist in the preparation of their cattle-folds (which are enclosures formed of posts and boughs closely woven together)—in hunting the elephant, panther, &c., and in preparing the leathern garments required for their own use and for that of their wives and children. The more laborious occupations of tillage, of felling wood, and of building their habitations, are performed by the women, whose life, after marriage, is indeed one of bondage. As in all other heathen countries, the order of nature is thus reversed, and the weaker vessel is invariably made to bear the heaviest burdens. The consequence of this state of things is, that before the women can be said to have attained the prime of life, their strength rapidly fails, and they become emaciated and infirm, and countenances that in many instances might be called beautiful, from their vivacity and pleasing expression, quickly lose their attractive character, and present an appearance almost capable of inspiring disgust.

Excepting in the case of the Kaffer monarch, and a few of the ruling chiefs, the rite of burial is never performed. The bodies of deceased relatives are conveyed as speedily as possible to some distance from the abodes of the survivors, and there left to be the prey of wild beasts. Nor do they in every instance allow the spark of life to be extinguished ere they hurry away their dying friend. So anxious are they to get rid of what is to them a most painful and unpleasant object, that on the appearance of convulsive symptoms they pronounce the patient to be already dead, and immediately proceed with their office. Thus, dark and miserable is the end of the poor Kaffer. Unconsoled by the voice of one sympathizing friend, he is hurried away in his dying moments, and, perhaps, ere consciousness has wholly left him, becomes the prey of the beast of the desert. Who can contemplate this single fact, without earnestly desiring that Christianity, with all its blessed effects, may become prevalent in the land of the Kaffer, and rescue him from the bondage of vice and of heathen customs!

Our frontispiece represents a Kaffer village, the huts of which are built in the form of a bee-hive; composed of wattling, plastered over with a composition of clay and cow-dung. That of the chief is larger than the rest, and stands at the head of the *kraals** or cattle-folds. The ordinary huts are six or

* In reading the accounts of travellers respecting the native tribes of Southern Africa, we frequently find the word "kraal" adopted

seven feet in diameter and have a square opening for an entrance. When moving about in search of fresh pasture, or driven from their usual dwellings by the attacks of an enemy, the Kaffers erect temporary dwellings, rudely constructed of twigs and grass, or composed of the living branches of some extensive thicket closely twined together.

for "village," or a small collection of native huts. The word "kraal" is objectionable: it is a Dutch term, and signifies "beast-fold;" a term by which the old colonists contemptuously designated all native towns and villages; regarding their inhabitants as animals, but not men. The Kaffer word for village is *umti*.

GARDEN HERBS. VIII.

MARJORAM.

Herbs Physical of divers qualities

I plant, and in good order methodize;

For since our nature in its frame contains

The seeds of Death, and source of previous pains;

Since serpents venomous beneath the grass

Lurk, to inject their poisons as we pass,

'Tis fit the ground some healing plants should bear,

That where the danger is the cure be near.—

JOHN LAWRENCE, 1728.

THE above lines form part of a curious poem, entitled *Paradise Regained, or the Art of Gardening*. The lines subsequent to those we have quoted, recount the wonders effected in ancient and modern times by the proper use and application of herbs, but it would be foreign to our purpose to dwell on this subject longer than is necessary to show how much of superstition and credulity were mixed up with the medical science of former days.

Sweet Marjoram. (*Origanum marjorana*.) was first cultivated in England in 1753. It was raised from seed obtained from Portugal, in which country, as well as in Spain and Italy, it is very abundant. The native countries of this species of *Origanum*, however, are the islands of Candia and Cyprus. In England it is a tender annual, and does not receive sufficient warmth from our climate to ripen its seed, so that we are obliged to receive our supply from Italy. It is sometimes called *knotted* marjoram, on account of the position of the flowers, which are clustered together in globular knots round the joints of the stem.

Another species of marjoram, (*Dictamnus*.) was imported from Candia previously to that above mentioned, but it is rather known for its poetical associations than for its useful properties. It is the celebrated *dittany* of Crete, and is the plant which Venus is said to have brought for the cure of her son *Æneas*.

A branch of healing dittany she brought,
Which in the Cretan fields with care she sought;
(Rough is the stem, with woolly leaves surround;
The leaves with flowers, the flowers with purple crown'd.)
Well known to wounded goats; a sure relief
To draw the pointed steel, and ease the grief.

Dittany was likewise known to deer, if we may believe the ancients, who affirm that when these animals were wounded with arrows, they immediately sought out this herb, and ate of it plentifully, when it had the effect of discharging the darts. There is a traditionary tale respecting one of the kings of Cyprus, and the sycophants by whom he was surrounded. We are told that the monarch, *Cinyras* by name, was in deep affliction for the death of his son *Amaracus*, and his flatterers, thinking to afford him consolation, and by gratifying his vanity to promote their own ends, told him that the youthful prince while carrying a box of fragrant ointment, through a field of dittany, by accident spilt it on these herbs, which immediately acquired its excellent savour.

The prince was greatly distressed at the loss of his precious ointment, and the gods, in consideration of his parentage and merit, changed him into the fragrant herb which had now acquired all the virtues of the ointment. Hence the plant received the name of *Amaracus*.

Pot marjoram, (*Origanum onites*.) has the same qualities as sweet marjoram, but is more woody in its growth, being a perennial, and propagated by the partition of the roots. It is a native of Sicily, and of the southern parts of Greece.

Wild marjoram, (*Origanum vulgare*.) is very common on chalky and gravelly soils. It belongs to the fourteenth class and first order of Linnæus, and to the order Labiata in the natural system. It blows in July, and has a perennial, creeping, fibrous root: the stem is erect, square, purplish, downy, producing opposite branches, and about eighteen inches high: the leaves stand upon foot-stalks, in pairs at the joints, and are ovate, smooth above, and downy beneath, and of a deep yellow-green colour. The flowers are many, of a pale-purple colour, and standing in clusters: the floral leaves are brownish. The calyx is tubular, and divided into five segments: the corolla is a funnel-shaped tube, divided at the limb into two lips, one erect, the other spreading; the filaments have double anthers: the seeds are four in number, and of an oval shape.

Wild marjoram is a warm and pungent aromatic herb. It yields, on distillation with water, an essential oil of agreeable odour, which enters into the composition of some ointments, and is also used by farriers as a caustic. Dropped on cotton, this oil is sometimes applied with good effect for the relief of tooth-ach. The average produce of oil from this herb is one pound from two hundred weight. It is sometimes sold under the name of *oil of thyme*. An infusion of wild marjoram makes excellent tea, and from the tops of the plant a purple dye may be obtained.

Of the reputed medicinal qualities of the different sorts of *Origanum*, we may further say that Hippocrates recommends it in all diseases which require heating, dissolving, and stimulating, whence it is beneficial in complaints of the lungs, being boiled in wine, and then sweetened with honey and drunk hot. A tea of the leaves is prescribed by him as effectual in the asthma, in violent coughs, and in indigestion, and the employment of the plant in baths is said to be good for hysteric affections, palsy, &c. Gerard recommends the use of marjoram in dropsy; Hartman assures us that it restores the sense of smell, when lost; Culpeper talks of its restoring lost speech; Bourgeois says it is a specific for apoplexy and paralysis, and Chamberlayne gravely informs us that it is very necessary in food to "*corroborate, cleanse, and mundifie the stomach.*"

Sweet marjoram is used in the preparation of cephalic snuff, but is chiefly esteemed as a seasoning ingredient for the kitchen, where, in common with pot marjoram, it is valued for its aromatic flavour. It has been in use for these purposes ever since the time of Queen Elizabeth, when it was not only employed in broth-meats, but in the composition of wafer-cakes, &c.

Sweet, or knotted marjoram, being a tender plant, must (if wanted early in the season) be sown on a bed moderately heated, towards the end of March, or if not required early, it may be sown on a warm border about the middle of April; the plants to be afterwards thinned, and left to grow without being transplanted. If it has been sown in a hot-bed, it must be gradually hardened to the weather, and

then planted out in pots or in the open ground. It is a good plan to have a few plants in pots, as these may be placed in a warm shed or in a green-house as winter approaches, and thus be preserved for use nearly throughout the season.

The perennial roots of pot-marjoram are parted into small tufts in the early part of spring, and planted in a light soil, at a foot distance from each other. This herb, as well as all others, should be cut for drying when it is in full bloom, as it then possesses its greatest strength and virtue. When cut it should be laid in a shady place to dry, and then put in clean paper bags, and hung in a dry place where it will be free from dust.

The botanical name of this herb, (*Origanum*), is derived from two Greek words, signifying "a hill" and "I delight." Miller enumerates thirteen species, and Linnæus eleven. The *Hortus Kewensis* mentions ten kinds of marjoram. Sweet marjoram, or *marjory*, which is the common term, is rarely forgotten in a cottager's nosegay. Its abundant blossoms and fragrant smell make it a great favourite with him, and he is also much more disposed to place faith in its medicinal virtues than those who have foreign drugs at their command. Shenstone makes it one of the ornaments of the *Schoolmistress' Garden* :—

And marjoram sweet, in shepherds' posy found,
And lavender, whose spikes of azure bloom
Shall be, erewhile, in arid bundles bound,
To lurk amidst the labours of her loom,
And crown her 'kerchiefs clean with mickle rare perfume.

TO THE PLANET VENUS,

UPON ITS APPROXIMATION (AS AN EVENING STAR) TO
THE EARTH, JANUARY, 1833.

What strong allurements draw, what spirit guides
Thee, Vesper! brightening still, as if the nearer
Thou comest to man's abode, the spot grew dearer,
Night after night! True is it, Nature hides
Her treasures less and less.—Man now presides
In power, where once he trembled in his weakness;
Knowledge advances with gigantic strides;
But are we ought enriched in love and meekness?
Aught dost thou see, bright star! of pure and wise,
More than in humbler times graced human story;
That makes our hearts more apt to sympathize
With heaven, our souls more fit for future glory,
When earth shall vanish from our closing eyes,
Ere we lie down in our last dormitory.

WORDSWORTH.

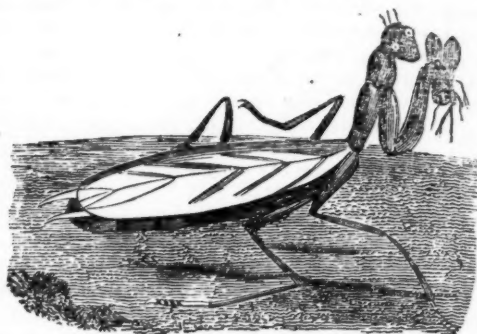
I MUST talk with my wife, and chat with my children, and I have somewhat to say to my servants! All these things I reckon as a part of business, except a man will resolve to be a stranger at home; for with whomsoever either nature, or chance, or choice has engaged a man in any commerce, he must endeavour to make himself as acceptable to those about him as he possibly can.—SIR THOMAS MORE.

DID the children of levity but know with what anxiety the heart of a parent flutters round the child he loves, they would be less apt to construe into harshness that delicate concern for their conduct, which they often complain of as laying restraint upon things, to the young, the gay and the thoughtless, seemingly harmless and indifferent.

THERE is scarcely anything so dangerous as attempting universal literature—of being able to criticise all modern books: it increases the memory at the expense of the reason; it supplies the grace of conversation without the labour of thought.—SIR HUMPHRY DAVY.

THE decrees of Providence are inscrutable; in spite of man's short-sighted endeavours to dispose of events according to his own wishes and his own purposes, there is an Intelligence beyond his reason, which holds the scales of justice, and promotes his well-being, in spite of his puny efforts.—MORIE.

THE MANTIS ORATORIO, OR CAMEL-CRICKET.



THE genus to which the *Mantis oratorio* belongs is one of the most singular in the whole class of insects; so much so that description can convey but a very imperfect idea of the remarkable appearance of some of the species it contains. As if designed to form a connecting link in the chain of universal being, some of these insects unite the appearance of a vegetable with the vital functions of an animal; while others exhibit a grotesqueness of attitude and behaviour in the pursuit of their prey, and a fierce animosity in their warfare with each other, that render them no less the objects of curiosity among naturalists.

Of this latter kind is the *Mantis oratorio*, an insect which England does not produce, and of which therefore we must be satisfied to learn particulars from foreign entomologists, or from such of our countrymen as may have had an opportunity of observing its habits in other parts of the world. It is found in Asia, Africa, and the warmer parts of Europe, and is entirely of a beautiful green colour. The head is unsteady, and slightly attached to the thorax. The mouth is furnished with jaws, and has its feelers filiform. The wings are four, membranaceous, and convoluted; the lower pair plaited. The fore-legs are compressed, serrated, or toothed, beneath, and armed with a single claw and a lateral-jointed foot. The hind-legs are smooth, and formed for walking. The insect is nearly three inches in length, of a slender shape, and in its general sitting posture is observed to hold up the two fore-legs, slightly bent, as if in the attitude of prayer: hence the country people, in many parts of the continent, regard it as a sacred insect, and are careful to do it no injury. An old French author tells us that it is called *Mantis*, or *fortune-teller*, either because by its arrival it shows spring to be at hand, or because it holds up its fore-feet like hands, praying in the same manner as the diviners, when they poured out their supplications to their gods. "So divine a creature is this esteemed," continues he, "that if a child ask the way to any place, it will stretch out one of its feet and show him the right way, and seldom or never miss." The attitude which has thus excited the popular superstition, and led the ignorant to ascribe marvellous powers to the camel-cricket, is nothing more than the posture in which it can most conveniently seize its prey. The long fore-arms of the insect, with the head and thorax, all elevated for hours together in the position represented in the woodcut, have certainly something of a praying attitude, and it is no wonder that the circumstance should have suggested both the specific and familiar names of the *Mantis* tribe. The former are *religiosa*, or *oratorio*, *precaria*, *sancta*, &c. The names of others have arisen from their curious begging attitudes, as *mendica*, *pau-perata*, *superstitiosa*, &c. The trivial names given to the *Mantis oratorio* sufficiently indicate the supersti-

tious respect in which it is held. It is called by the French *Prie Dieu*, or according to some writers *Presque Dieu*, by the Italians *Pregadiou*, by the Portuguese *Louva Dios*. A monkish legend informs us that St. Francis Xavier, walking one day in a garden, and seeing an insect of the Mantis genus moving along in its solemn way, holding up its two fore-legs as in the act of devotion, desired it to sing the praises of God. The legend adds that the saint immediately heard the insect carol a fine canticle with a loud emphasis.

The patience of this Mantis in catching its prey is very remarkable. Rösel tells us that when once it fixes its eyes on an insect it rarely loses sight of it again, though it may cost some hours to take. If it sees the insect a little beyond its reach, over its head, it slowly erects its long thorax, by means of the moveable membranes which connect it with the body at the base; then resting on the four posterior legs, it gradually raises the anterior pair also: if this brings it near enough to the insect, it throws open the last joint, and snaps its prey between the spines, that are set in rows on the second joint. If it is unsuccessful it does not retract its arms, but keeps them still stretched out, and waits for a more favourable opportunity of seizing the insect. If the latter goes far from the spot, the mantis flies after it, and as it approaches the place, crawls slowly along the ground like a cat, ready to spring upon its prey. It has a remarkable quickness of sight, being possessed of a small black pupil or sight, which moves in all directions within the parts we usually term eyes, so that it can see its prey in any direction, without having occasion to startle it by turning its head.

The female mantis deposits her eggs in regular order on the twigs of plants, and covers them with a white substance, which on hardening gains a yellow colour. This takes place in September, but it is not till the following June that the insects appear. In the larva state they have all the appearance of their parents, except that they are destitute of wings and wing-covers.

The disposition of this Mantis to prey on its own species, has long attracted the attention of naturalists. Rösel, wishing to observe the gradual progress of these creatures to the winged state, placed some eggs in a large covered glass. From the time they were first hatched they showed signs of a savage disposition; and though he supplied them with different sorts of plants, they preferred preying on each other. This determined him to supply them with other insects to eat: he put ants into the glass to them, but they then betrayed as much fear as they had before shown barbarity, and tried to escape in every direction. He next gave them some of the common *musca*, (house-fly,) which they seized with eagerness and tore in pieces; but, though these creatures seemed very fond of flies, they still continued to destroy one another through savage wantonness. Despairing at last of rearing any to the winged state, he separated them into small parcels in different glasses, but here, as before, the strongest of each community destroyed the rest. On receiving some of these insects in the winged state, he placed each pair in a separate glass, but found that the fierceness of their disposition is not softened by sex or age, for the stronger of the two, whether male or female, rushed at the other with great velocity, and tore it in pieces with the crotchets and spines of the fore-claws.

The Chinese, aware of the fighting propensity of these insects, keep them in little bamboo cages, and match them together in combats, in the same way as in this country fighting cocks used to be matched. Rösel compares the attacks of the Mantis tribe

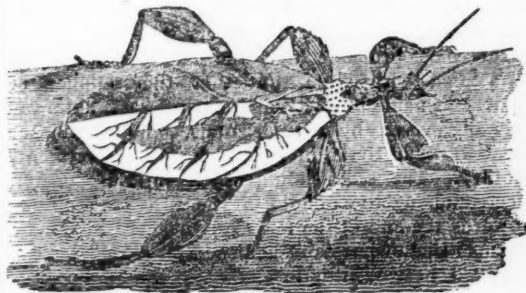
to that of hussars; for they dexterously guard and cut with their fore-claws, as those soldiers do with sabres, and sometimes at a stroke one of them cleaves the other through, or severs its head from the thorax; after this, the victorious mantis devours his fallen enemy.

Various species of Mantis have been found throughout the warmer regions of the earth, reaching as far north as the middle of France. Their forms are variable; some of them bear so exact a resemblance to the leaves of the trees they inhabit, that travellers have been struck with the phenomenon, as it seemed, of animated vegetable substances. Indeed, their manners, as well as their structure, are very likely to impose on persons who have but little acquaintance with the insect world. They often remain on the trees for hours together without motion, then suddenly spring into the air, and when they settle again appear lifeless; these are only stratagems made use of to deceive the more cautious insects on which they feed, but some travellers who had witnessed this curious sight, declare that they saw the leaves of trees become living creatures and take flight.

Were these insects as voracious in their vegetable diet as they show themselves with respect to other insects, and even their own species, they would prove very formidable enemies in the countries where they abound; for, according to Renard, the larger kinds of Mantis go in vast troops, and cross hills, rivers, and other obstacles that oppose their march, when they are in quest of food. Thus they clear the earth of myriads that infest it, and when these become scarce from their ravages, they bite and devour one another.

The Mantidæ are found to be most active in situations where they are exposed to the greatest heat. As the season declines, they become comparatively inert, and are more easily taken. In attempting to catch them, however, it is difficult to escape being wounded by the sharp spines of their fore-limbs, which readily pierce the skin.

The species called *Mantis precaria* is a native of many parts of Africa. It is of the same general size and shape with the species we have been describing, is of a beautiful green colour, with the thorax ciliated, or spined, on each side, and the upper wings each marked in the middle by a semi-transparent spot. It is the supposed idol of the Hottentots, and this superstitious people are reported to hold in the highest reverence the person on whom the adored insect happens to alight, such a person being considered as favoured by the distinction of a celestial visitant, and regarded ever afterwards as a saint.



WALKING-LEAF INSECT.

Of all the Mantids the most singular is said to be the *Mantis gongyloides* of Linnæus, which has very thin limbs and a grotesque appearance, greatly resembling in its dried form the conjunction of several fragments of withered leaves and stalks.

Not only in the Mantis tribe, but in several other families of tropical insects, may be found those extraordinary species to which the popular name of *Walking-leaf* has been applied. Among locusts we find insects with wing-cases bearing the most striking resemblance to the leaves of the laurel, the myrtle, the citron, the lily, the sage, the olive, the camellia, thyme, and grass; hence their specific names of *citri-folia*, *laurifolia*, *oleifolia*, &c. and the likeness they bear to these leaves is so great, not only in the colour but in the texture, and even the veining of the wing-cases, that were these detached from the body, it is thought that even botanists themselves might be deceived by them, and suppose them real leaves. Nor are these remarkable cases entirely without parallel among our own insects, when in their larva state. An attentive observer of nature will frequently discover, among the numerous caterpillars that infest our hedges and trees, a great similarity between the colour and make of the little creature, and that of the twig on which it rests. The dull hues and speckled surface of some, might very well be mistaken for the lichen-covered bark of the tree itself, while the smooth and glossy green of others aptly represents the young shoots on which it feeds. This adaptation of the appearance of the insect to the circumstances in which it is placed, is, doubtless, intended for its preservation and concealment, and affords another instance of the wise provision made for the wants of apparently insignificant portions of God's creation.

ALUM AND ALUM-WORKS.

II.

THIS very useful substance is composed principally of two ingredients, sulphuric acid, and alumina; but it also contains a portion of one of the three alkalis, potash, soda, or ammonia. More commonly it is the first of the three, and is then, chemically speaking, a sulphate of alumina and potash; but it is usually called *common* or *potash alum*; while the other two kinds are called respectively *soda alum*, and *ammonia alum*. The two latter kinds are not much known in commerce; we will therefore confine our notice to common or potash alum.

The appearance of alum is too well known to need description. Its uses in the arts and medical sciences are numerous. It forms one of the ingredients in many kinds of medicine: it is a necessary ingredient in many kinds of paint: its use is indispensable to the dyer, as a *mordant*, or means of fixing the colour to cloth: it is used for preparing all those kinds of leather which are neither tanned nor dressed with oil: it is used by candle-makers, to harden their tallow and render it white; and in a variety of other processes, the value of alum is very conspicuous.

It seems probable that the ancients were unacquainted with alum, but that they applied an equivalent name to a vitriolic earth. True alum was first discovered by the Orientals, who established alum-works in Syria, in the thirteenth or fourteenth century. The oldest alum-works in Europe, were erected about the middle of the fifteenth century. Towards the end of the reign of Queen Elizabeth, Sir Thomas Chaloner established the first alum-works in England, near Whitby in Yorkshire, where the principal works of the kind in this country are still carried on. There are also large works at Hurllett, near Paisley. The best alum is considered to be that from the neighbourhood of Civita Vecchia, in the papal territory. There is a species often called *Rock-alum*: this is a wrong term: it should be Roch, from Rocha, in Syria, from whence it is procured.

Alum is procured in various ways, according to the nature of the mineral employed. We will describe the principal modes of operation. The first of which we shall speak is the production of alum from a volcanic sulphureous earth near Naples. The *Solfaterra*, according to Dr. Aikin, is a small plain on the top of a hill near Naples, and is covered with a white soil, in which are perceived numerous round holes or craters, from which sulphureous vapours are constantly ascending. The ground, even at the surface, is warm, and at the depth of a few inches is too hot to be borne by the hand. This white clayey soil, being penetrated and entirely impregnated by sulphureous vapours, forms a rich ore of alum. In order to extract the alum, a shed is erected, in the middle of which is placed a large oblong leaden cistern, let into the ground almost up to the brim, in order to receive a proper quantity of the subterranean heat; this cistern is surrounded by smaller caldrons, sunk into the ground in a similar manner. When all is prepared, some of the sulphureous earth is put into the cistern, and water is poured on it: this mixture is carefully stirred till the whole of the salt is dissolved; after which, the earth being removed, a fresh portion is put in, so as to bring the water almost to a state of saturation with the salt. The liquor is now removed into the smaller caldrons, and the loss by evaporation is supplied by fresh liquor. The whole is then removed into tubs, where, as it cools, it deposits a large quantity of crystals of alum. These crystals are purified by a second solution and crystallization, after which they are fit for the market. This alum is the most easily procured of any, because it exists ready prepared in the soil; but from the careless mode in which it is manufactured, it is but little known out of Naples.

We have said that the finest alum is procured from the Roman territory. This is prepared at the old-established works of La Solfa, near Civita Vecchia, from a kind of *alum-stone* procured about a mile from the works. This alum-stone occurs in irregular strata, and in deep veins in the side of a hill. When unmixed with other substances, it is of a yellowish white colour, and so hard as to require blasting by gunpowder. The stone is first broken into pieces of a moderate size, and then roasted. The furnace used for this purpose is a cylindrical cavity in a mass of masonry, the greater part of which is occupied by a hemispherical dome, with a large round aperture at the top. The wood-fuel is conveyed through a side door into the dome, and the alum-ore is piled carefully over the aperture, so as to form a smaller dome, whose diameter is equal to that of the aperture in the larger one. As soon as the fire is kindled, the smoke and flame penetrate through the interstices of the pieces of ore, and quickly heat the whole mass. For the first three or four hours, the smoke escapes in dense black volumes; but by degrees it acquires a white colour, the pieces of ore become of a bright red, or-rose colour, and a smell of sulphur becomes manifest. In twelve or fourteen hours the fire is extinguished, and when the alum-stones have cooled, they are removed, and again replaced for a second roasting, but observing that those should now be placed in the middle which before occupied the outside of the heap.

When the roasting is completed, the alum-stones are piled upon a smooth, sloping floor, in long parallel ridges, between each of which is a trench filled with water. From these trenches the ridges are frequently sprinkled; and after a few days the pieces begin to swell and crack, and fall to powder, like quicklime when slaked; acquiring at the same time a light reddish colour; and in five or six weeks

this operation is completed. A leaden boiler is then two-thirds filled with water, and portions of the slaked ore are successively stirred in, till the vessel is nearly full. When the liquor begins to boil, the ore is diligently stirred up from the bottom, that the whole of the alum may be dissolved. At the end of about twenty-four hours, the fire is extinguished, and the liquor is left at rest for the particles of earth to subside. As soon as this has taken place, a stop-cock, fixed in the side of the boiler, about one-third of its height from the bottom, is opened, and the clear solution is transferred along a wooden spout, into square wooden reservoirs, seven feet high by five wide, so constructed as to be readily taken to pieces: in these it remains about a fortnight, during which time the alum crystallizes in irregular masses upon the sides and bottom. More alum is afterwards procured from the remaining liquor, by a subsequent process.

We now come to our own country, and shall speak of the alum-works at Whitby. The mineral from which the alum is here procured, is *alum slate*, or *alum shale*; and the mode of preparation, as detailed by Mr. Winter and Dr. Ure, is nearly as follows. The stratum of alum-slate is about twenty-nine miles in width, and is covered by strata of alluvial soil, sand-stone, iron-stone, shells, and clay. The alum-slate is generally found disposed in horizontal layers. The rock is first broken into small pieces, and laid on a horizontal bed of fuel, composed of brushwood, &c. When the rock is piled up to a height of about four feet, fire is applied to the bottom, and fresh rock is continually heaped upon the pile. This is continued until the calcined heap be raised to the height of ninety or one hundred feet. Its horizontal area has also been progressively extended at the same time, till it forms a great bed, nearly 200 feet square, containing 100,000 cubic yards of rock. The rapidity of the combustion is allayed by plastering up the crevices with moistened clay.

When the rock has been thus roasted or calcined, it is placed in water contained in pits, that usually hold about sixty cubic yards. The liquor is drawn off into cisterns, and afterwards pumped up again upon fresh calcined rock: this is repeated until the water becomes about one-seventh heavier than in its ordinary state, owing to the quantity of alum it now contains. This strong and heavy liquor is drawn off into settling cisterns, where iron, earth, and sulphate of lime, are deposited. When the subsidence (which is sometimes accelerated by boiling) is completed, the liquor is transferred into leaden pans, ten feet long, four feet nine inches wide, two feet two inches deep at one end, and two feet eight inches at the other. Here the liquor is concentrated at a boiling heat. Every morning the pans are emptied into a settling cistern, (which is effected more easily by the sloping shape of their bottoms,) and a solution of muriate of potash is added. After being allowed to settle about two hours, the liquor is poured off into coolers, to crystallize.

The liquor remains in the cooler about four days, after which the clear fluid is poured off, leaving crystals of alum at the bottom. These crystals are washed in a tub, drained, and put into a leaden pan, with as much water as will make a saturated solution at the boiling point. When this is effected, the solution is poured into casks, and allowed to remain there about a fortnight. At the end of this time, alum is found, exteriorly in a solid cake, but in the interior cavity in large pyramidal crystals. The alum is now in its finished state, fit for the market. It is thus seen, that Whitby alum differs from that of Naples or Rome, in the necessity for adding *potash*, or some

equivalent alkali, to the ingredients already existing in the ore. About 130 tons of the Whitby ore are necessary to produce one ton of alum. The expense of digging, and removing to a distance of 200 yards, one cubic yard of the rock or ore, is about sixpence halfpenny; and the men earn from two to three shillings per day at the employment.

In Saxony the alum-ore, being of a somewhat different kind from those hitherto mentioned, is treated in a different manner; but what has been already said will sufficiently illustrate the general modes by which alum is procured.

I HOLD it indeed to be a sure sign of a mind not poised as it ought to be, if it be insensible to the pleasures of home, to the little joys and endearments of a family, to the affection of relations, to the fidelity of domestics. Next to being well with his own conscience, the friendship and attachment of a man's family and dependents seems to me one of the most comfortable circumstance of his lot. His situation, with regard to either, forms that sort of bosom comfort or disquiet that sticks close to him at all times and seasons, and which, though he may now and then forget it amidst the bustle of public, or the hurry of active life, will resume its place in his thoughts, and its permanent effects on his happiness, at every pause of ambition or of business.

I WOULD distinguish between that knowledge of the world which fits us for intercourse with the better part of mankind, and that which we gain by associating with the worst.

RELIGION.—It will one day be understood, that whatever wars with reason and common sense, is equally hostile to religion. The simple and unchangeable truths of Christianity will be found to violate none of our most obvious convictions. Truth will reassume her legitimate reign, and piety, religion, and morals, our best interests for this life, and our surest preparations for a future one, will be found exactly conformable to the eternal order of things: and thus the system of the Gospel will become universal according to its legitimate claims. True piety, in my opinion, is equally our duty, our wisdom, and our happiness. To behold God everywhere in his works, to hold communion with him in a contemplative and admiring spirit, to love and trust him; to find, in the deep and constantly-present persuasion of his being and attributes, a sentiment of exhaustless cheerfulness and excitement to duty, I hold to be the source of the purest and sublimest pleasure that earth can afford.—D.

PRIDE relates more to our opinion of ourselves; vanity, to what we would have others think of us.

AUTUMN.

THERE is an "even-tide" in the year,—a season, as we now witness, when the sun withdraws his propitious light,—when the winds arise, and the leaves fall, and nature around us seems to sink into decay. It is said, in general, to be the season of melancholy; and if by this word be meant that it is the time of solemn and of serious thought, it is undoubtedly the season of melancholy; yet it is a melancholy so soothing, so gentle in its approach, and so prophetic in its influence, that they who have known it feel, as if instinctively, that it is the doing of God, and that the heart of man is not thus finely touched but to fine issues.

1. It is a season which tends to wean us from the passions of the world. Every passion, however base or unworthy, is yet eloquent. It speaks to us of present enjoyment; it tells us of what men have done, and what men may do, and it supports us everywhere by the example of many around us. When we go out into the fields in the evening of the year, a different voice approaches us. We regard, even in

spite of ourselves, the still, but steady advances of time.

A few days ago, and the summer of the year was grateful, and every element was filled with life, and the sun of heaven seemed to glory in his ascendant. He is now enfeebled in his power: the desert no more "blossoms like the rose:" the song of joy is no more heard among the branches; and the earth is strewn with that foliage which once bespoke the magnificence of summer. Whatever may be the passions which society has awakened, we pause amid this apparent desolation of nature. We sit down in the lodge "of the wayfaring man in the wilderness," and we feel that all we witness is the emblem of our own fate. Such also, in a few years, will be our own condition. The blossoms of our spring, the pride of our summer, will also fade into decay; and the pulse that now beats high with virtuous or with vicious desire will gradually sink, and then must stop for ever.

We rise from our meditations with hearts softened and subdued, and we return into life as into a shadowy scene, where we have "disquieted ourselves in vain." Such is the first impression which the present scene of nature is fitted to make upon us. It is this first impression which intimidates the thoughtless and the gay; and, indeed, if there were no other reflections that followed, I know not that it would be the business of wisdom to recommend such meditations. It is the consequences however of such previous thoughts which are chiefly valuable; and among these there are two which may well deserve our consideration.

2. It is the peculiar character of the melancholy which such seasons excite, that it is general. It is not an individual remonstrance; it is not the harsh language of human wisdom, which too often insults while it instructs us. When the winds of autumn sigh around us, their voice speaks not to us only, but to our kind; and the lesson they teach us is not that we alone decay, but that such also is the fate of all the generations of man. "They are the green leaves of the tree of the desert, which perish and are renewed."

In such a sentiment there is a kind of sublimity mingled with its melancholy: our tears fall, but they fall not for ourselves; and, although the train of our thoughts may have begun with the selfishness of our own concerns, we feel that, by the ministry of some mysterious power, they end in awakening our concern for every being that lives. Yet a few years, we think, and all that now bless, or all that now convulse humanity, will also have perished. The mightiest pageantry of life will pass, the loudest notes of triumph or of conquest will be silent in the grave;—the wicked, wherever active, "will cease from troubling," and the weary, wherever suffering, "will be at rest."

Under an impression so profound, we feel our own hearts better. The cares, the animosities, the hatreds, which society may have engendered, sink unperceived from our bosoms. In the general desolation of nature, we feel the littleness of our own passions; we look forward to that kindred evening which time must bring to all; we anticipate the graves of those we hate, as of those we love. Every unkind passion falls with the leaves that fall around us; and we return slowly to our homes, and to the society which surrounds us, with the wish only to enlighten or to bless them.

3. If there were no other effects of such appearances of nature upon our minds, they would still be valuable,—they would teach us humility,—and with it they would teach us charity. In the same hour in which they taught us our own fragility, they would teach us commiseration for the whole family of man.

But there is a further sentiment which such scenes inspire, more valuable than all; and we know little the designs of Providence when we do not yield ourselves in such hours to the beneficent instincts of our imagination.

It is the unvarying character of nature, amid all its scenes, to lead us at last to its Author; and it is for this final end that all its varieties have such dominion upon our minds. We are led by the appearances of spring to see his bounty; and we are led by the splendours of summer to see his greatness. In the present hours we are led to a higher sentiment; and, what is most remarkable, the very circumstances of melancholy are those which guide us most securely to put our trust in Him.

We are witnessing the decay of the year; we go back in imagination, and find that such, in every generation, has been the fate of man: we look forward, and we see that to such ends all must come at last: we lift our desponding eyes in search of comfort, and we see above us One "who is ever the same, and to whose years there is no end." Amidst the vicissitudes of nature we discover that central Majesty, "in whom there is no variableness nor shadow of turning." We feel that there is a God; and from the tempestuous sea of life we hail that polar star of nature, to which a sacred instinct had directed our eyes, and which burns with undecaying ray to lighten us among all the darkness of the deep.

From this great conviction there is another sentiment which succeeds. Nature, indeed, yearly perishes, but it is yearly renewed. Amid all its changes, the immortal spirit of Him that made it remains; and the same sun, which now marks with his receding ray the autumn of the year, will again rise in his brightness, and bring along with him the promise of the spring, and all the magnificence of summer.

Under such convictions hope dawns upon the sadness of the heart. The melancholy of decay becomes the very herald of renewal; the magnificent circle of nature opens upon our view. We anticipate the analogous resurrection of our being; we see beyond the grave a greater spring, and we people it with those who have given joy to that which is passed. With such final impressions, we submit ourselves gladly to the destiny of our being. While the sun of mortality sinks, we hail the rising of the Sun of Righteousness, and in hours when all the honours of nature are perishing around us, we prostrate ourselves in deeper adoration before Him who "sitteth upon its throne."

Let, then, the young go out, in these hours, under the descending sun of the year, into the fields of nature. Their hearts are now ardent with hope,—with the hopes of fame, of honour, or of happiness; and in the long perspective which is before them, their imagination creates a world where all may be enjoyed. Let the scenes which they now may witness moderate, but not extinguish, their ambition. While they see the yearly desolation of nature, let them see it as the emblem of mortal hope; while they feel the disproportion between the powers they possess, and the time they are to be employed, let them carry their ambitious eye beyond the world; and while, in these sacred solitudes, a voice in their own bosom corresponds to the voice of decaying nature, let them take that high decision which becomes those who feel themselves the inhabitants of a greater world, and who look to a Being incapable of decay.—ALISON.

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